FORZA

Auto Bender

Datasheet

Model FAB320T

V250918

FORZA
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Industrial CNC Automatic Panel Bending Machine.

AUTOMATIC BENDING

The FORZA Auto Bender is an automatic panel bending machine designed for mass production. It integrates a CNC control system powered by 13 servomotors.

Once the metal sheet is loaded, the machine performs the bending operations for the direct fabrication of trays, drawers, panels, and a wide variety of products.

Key Features

FEATURE	DETAIL
Application	Automatic panel bending
Maximum working area	10.5ft x 4.9ft | 3200mm x 1500mm
Maximum bending height	7.9in | 200mm
Maximum bending thickness in ASTM A36	5/64in | 2mm
Minimum bending thickness	1/64in | 0.35mm
Bending accuracy	≤ 0.04in | 1mm
Accuracy in curved/straight bends	≤ 0.04in | 1mm

Special Features

Multiple Bending Shapes

A wide variety of bends can be created upwards or downwards on the sheet: right angles, irregular angles, flat bends, curved bends, among others.

High efficiency

The machine's automatic bending system increases process efficiency, making it up to three times faster compared to manual operation with a conventional bender.

Ultra-precision

The CNC system incorporates 13 different servomotors, providing complete and extremely precise control over the positioning of the workpiece and its bending process.

Software FORZA

Specialized software in English or Spanish for the automatic bending process. It allows intuitive production planning through 3D models and simulation.

Extremely long-life tool

The bending tools are made of chromium-molybdenum alloy steel (42CrMo), providing high strength. Each tool has a service life of up to one million bends under normal operating conditions.

Pneumatic Fixing

Additionally, pneumatic actuators are used to secure the rollers, preventing displacement during the bending process. This ensures optimal performance.

General Features

FEATURE	DETAIL
Model	**FORZA Auto Bender – FAB320T**
Axis drive type	Servo-electric
Nominal pneumatic inlet pressure	87psi | 6bar
Nominal pneumatic inlet flow	0.7cfm | 20L/min
Types of operations	Automatic bending
Bending accuracy	≤ 0.04in | 1mm
Accuracy in curved/straight bends	≤ 0.04in | 1mm
Maximum bending speed	0.2s per bend
Maximum working area	10.5ft x 4.9ft | 3200mm x 1500mm
Maximum bending height	7.9in | 200mm
Maximum bending thickness in ASTM A36	5/64in | 2mm
Minimum bending thickness	1/64in | 0.35mm
Control axes with servomotors	16
Servomotor brand	INOVANCE
Positioning servomotors power	D: 0.4 kW
	D2: 0.4kW
	U3: 2kW
Feeding servomotor power	U: 1.8kW
Lower rotation servomotor power	C: 0.8kW
Upper rotation servomotor power	C1: 0.4kW
Clamping axis servomotor power	H3: 1.8kW
Pressure servomotors power	Z1: 18.8kW
	Z2: 18.8kW
	Z3: 18.8kW
	X1: 2.9kW

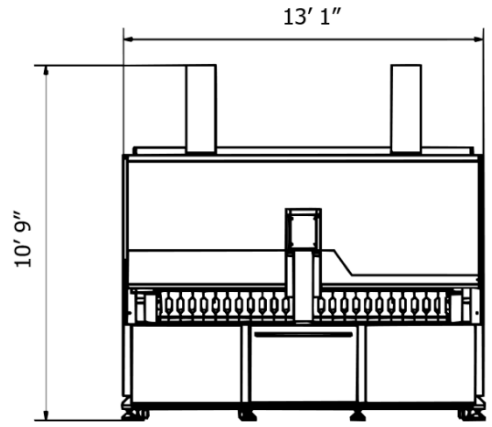
Tool positioning servomotors power	X2: 2.9kW		
	X3: 2.9kW		
Bending servomotors power	Y1: 5.5kW		
	Y2: 5.5kW		
	Y3: 5.5kW		
Total servomotors power	89kW		
Maximum machine power	102kW		
Minimum power requirement for electrical sizing [1]	89kW		
Average energy consumption [2]	< 15.3kWh		
Operating voltage	220V/250V/380V/440V/480V 3ph 50Hz-60Hz		
Corriente por línea	259A @ 220VAC 3ph		
	228A @ 250VAC 3ph		
	150A @ 380VAC 3ph		
	130A @ 440VAC 3ph		
	119A @ 480VAC 3ph		
Conductor wire gauge to the thermal magnetic circuit breaker (MCCB) [3]	**Up to 140°F | 60°C (TW, UF)**	**Up to 194°F | 90°C (THHW, THHN)**	**Voltage**
	3 x 3|0AWG	3 x 2|0AWG	220VAC 3ph
	3 x 3|0AWG	3 x 1|0AWG	250VAC 3ph
	3 x 1AWG	3 x 3AWG	380VAC 3ph
	3 x 2AWG	3 x 4AWG	440VAC 3ph
Recommended MCCB and grounding conductor	**MCCB**	**PE - PEN (Copper)**	**Voltage**
	270A	4AWG	220VAC 3ph
	240A	4AWG	250VAC 3ph
	160A	4AWG	380VAC 3ph
	125A	6AWG	480VAC 3ph

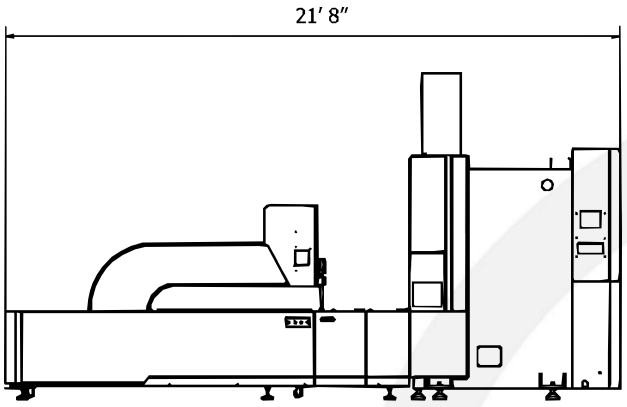
1. *The minimum power for electrical sizing is considered as the sum of the nominal power ratings of the servomotors, even if they do not operate simultaneously during the bending process.*
2. *The average consumption is calculated at 15% of the maximum power, since not all components are active during production. For hourly electrical consumption calculation, use the average consumption.*
3. *Cable gauge sizing was carried out based on Table 310-15(b)(16) of NOM-001-SEDE for maximum conductor temperatures of 60°C and 90°C, respectively, assuming an installation with conduit.*

Power supply cable length [4]	32.8ft | 10m
Compatible design formats	DXF
Operating software	FORZA
Software language	English and Spanish
PC control interface	By screen, mouse and keyboard
Pneumatic connection diameter	5/16in | 8mm
Machine weight	~ 44.1klb | 28000 kg
Transport weight	~ 46.3klb | 29000 kg
Machine dimensions	21.7 x 13.1 x 10.8 ft | 6600 x 4000 x 3280 mm
Transport dimensions	23 x 18 x 13.8 ft | 7000 x 5500 x 4200mm
Floor load capacity requirement	92.5psi | 6.5Kgf/cm^2
Relative humidity	< 85%
Operating temperature	35.6 - 95 °F | 2 - 35 °C
Storage temperature	46.4 - 86 °F | 8 - 30 °C
Certifications	CE, RoHS

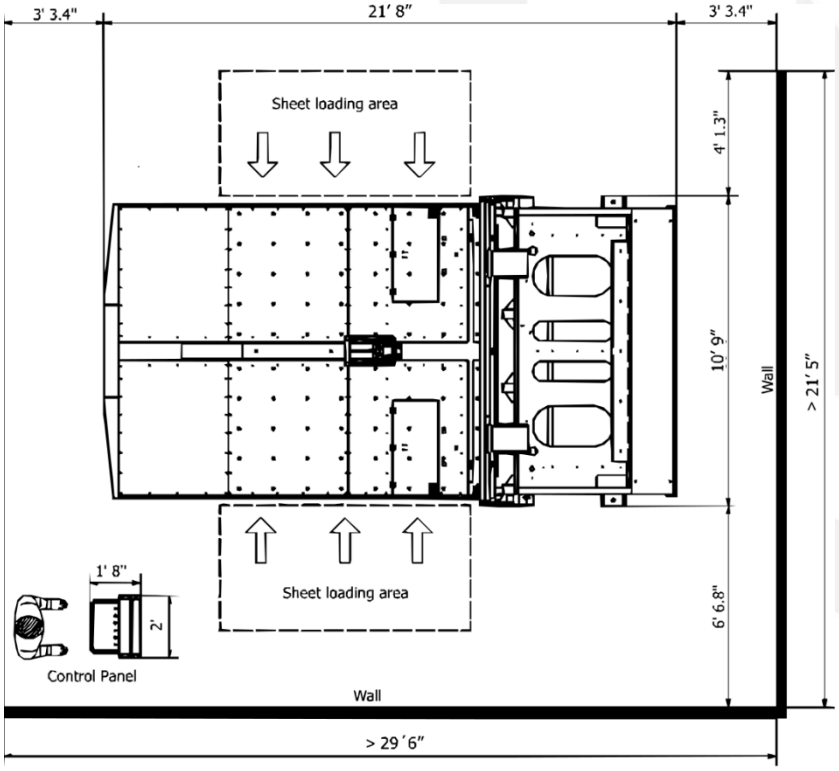
4. *The maximum length of the power supply cable is 10 m (32.8 ft) to prevent voltage drops and ensure optimal system performance.*

Machine Dimensions





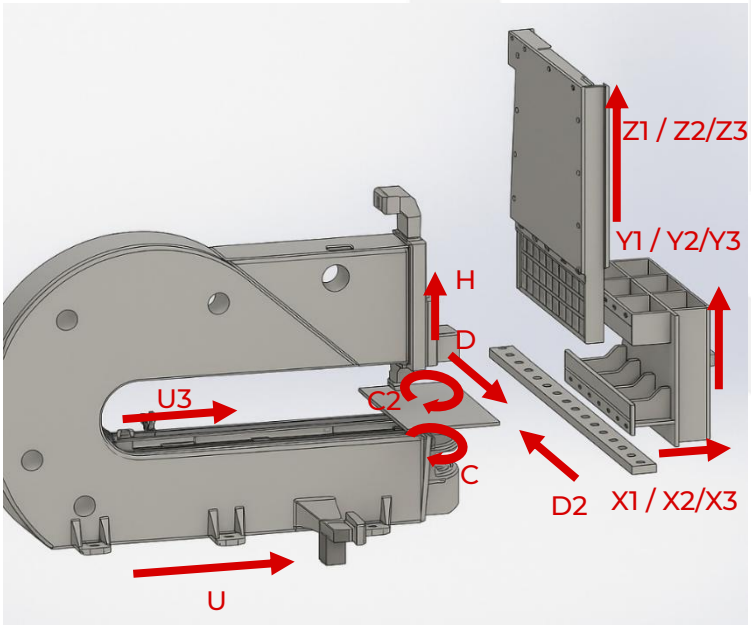
Required Space



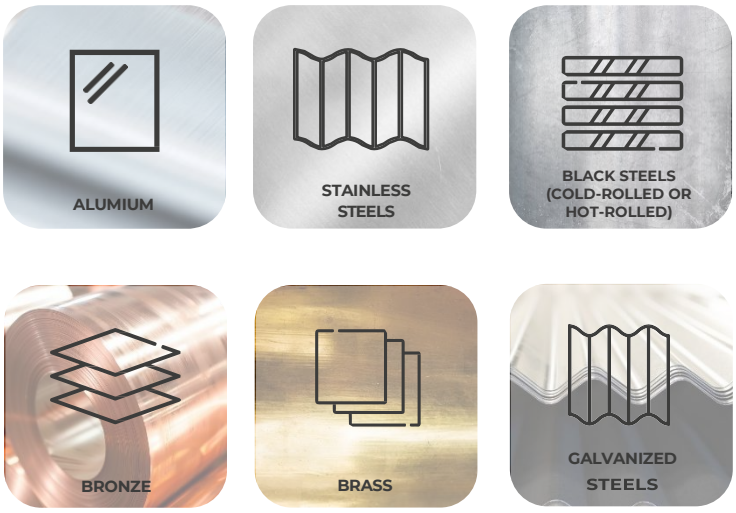
*Peripheral dimensions may vary depending on the machine model.

Machine Axes

Function	Movement Axis and Power
Sheet positioning	D: 0.4kW
	D2: 0.4kW
	U3: 2kW
Sheet feeding	U: 1.8kW
Lower sheet rotation	C: 0.85kW
Upper sheet rotation	C1: 0.4kW
Sheet clamping axis	H3: 1.8kW
Sheet pressure during bending	Z1: 18.8kW
	Z2: 18.8kW
	Z3: 18.8kW
Bending tool positioning	X1: 2.9kW
	X2: 2.9kW
	X3: 2.9kW
Bending action	Y1: 5.5kW
	Y2: 5.5kW
	Y3: 5.5kW



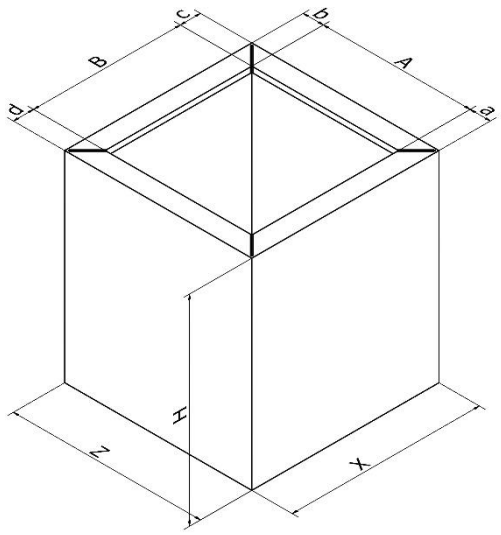
Applicable Materials



Bending Thicknesses by Material

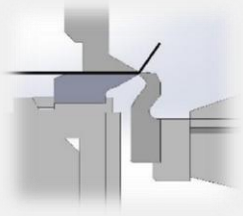
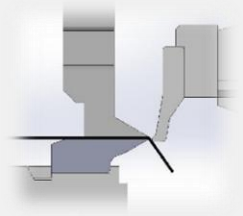
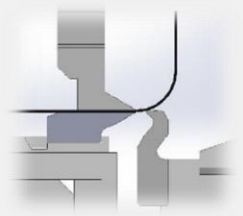
MATERIAL	MAXIMUM THICKNESS		
	mm	in	gauge
ASTM A36 STEEL (“Black or Mild”)	2	5/64	14
ASTM 304 STAINLESS STEEL	1.5	1/16	16
ASTM 6061 STRUCTURAL ALUMINUM	2.5	3/32	13

Admissible Panel Dimensions

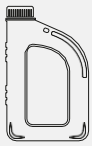


DIMENSION	VALUE
A	Min. 7 7/8in
B	Min. 7 7/8in
H	Max. 7 7/8in
a, b	Max. 2 3/8in
c, d	Max. 2 3/8in
Z	Min. a + b + 7 7/8in
X	Min. c + d + 7 7/8in

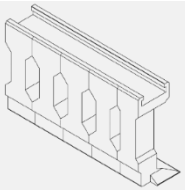
Bending Types

TYPE	IMAGE
Upward bending	
Downward bending	
Arc bending	
Flat bending	

Consumables

IMAGE	ITEAM	DESCRIPCIÓN
	Grease	For lubricating specific points such as bearings and guide rails
	Lubricating oil ISO 68	For moving parts and transmission systems

Tools

IMAGE	ITEM	DESCRIPTION
	Pressure and bending tool	Under normal operating conditions, it has a service life of 1 million cycles. It should be replaced if significant wear is detected.

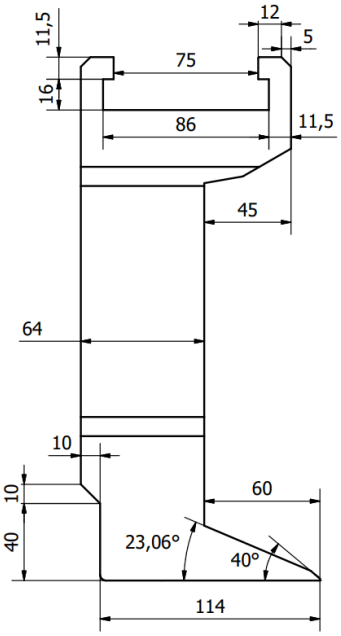
Optional Upgrades

IMAGE	ITEM	DESCRIPTION
	Round pressure jaws	Increases the contact area for coated or mesh sheets, preventing damage to the protective film or mesh deformation, while ensuring bending accuracy and a high-quality finish.
	Upper auxiliary tool	• Handles complex workpieces and performs partial bends. • Fast and precise movement to increase bending capacity. • Flexible and efficient movement to expand the bending range.
	Lower auxiliary tool	

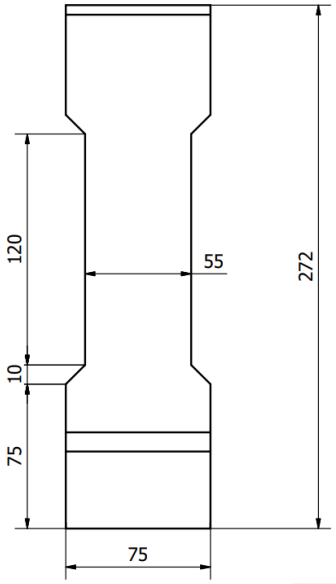
Tool Dimensions

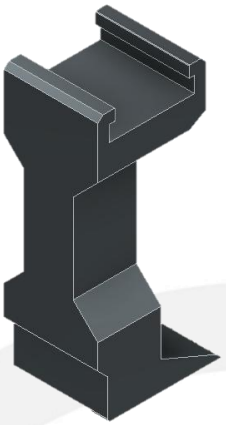
Central Tool

VISTA LATERAL



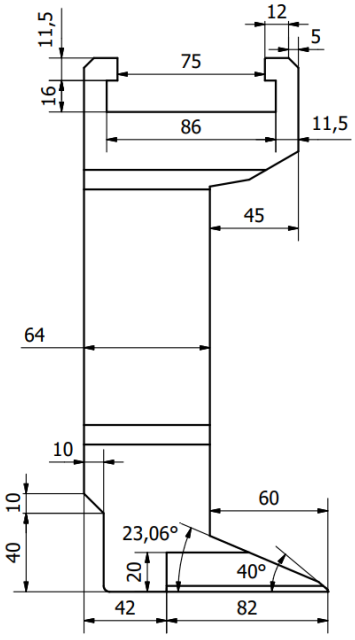
VISTA FRONTAL





Lateral Tool

VISTA LATERAL



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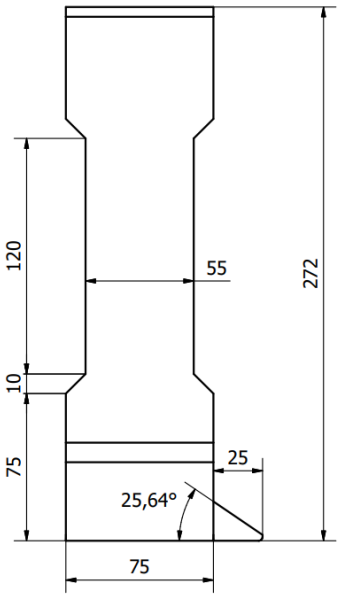
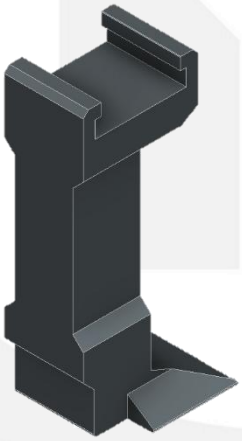
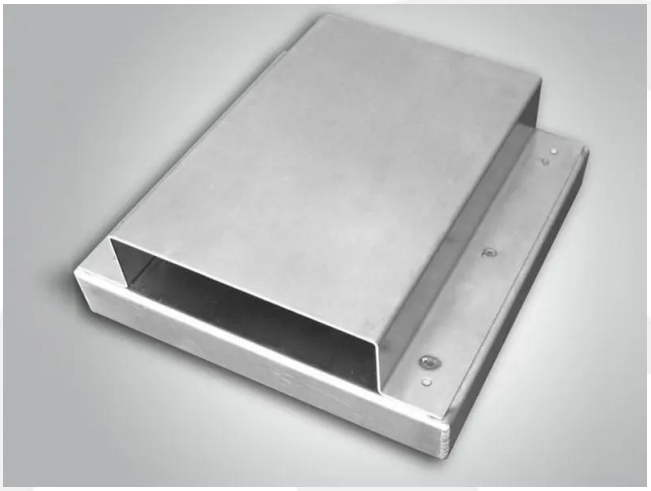
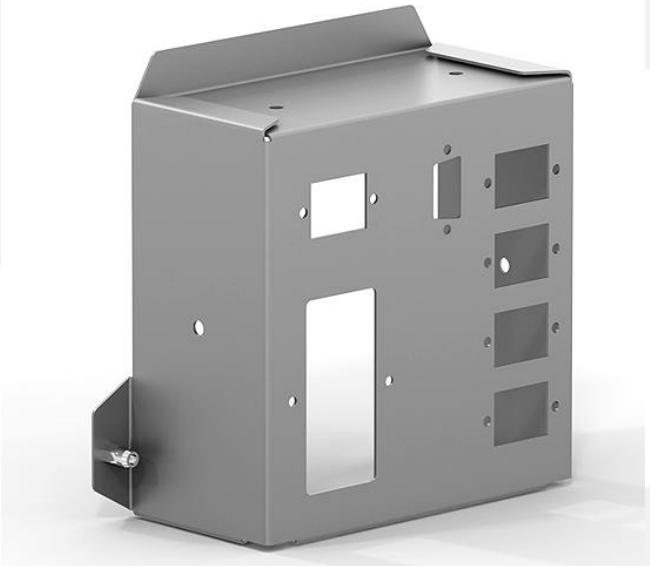
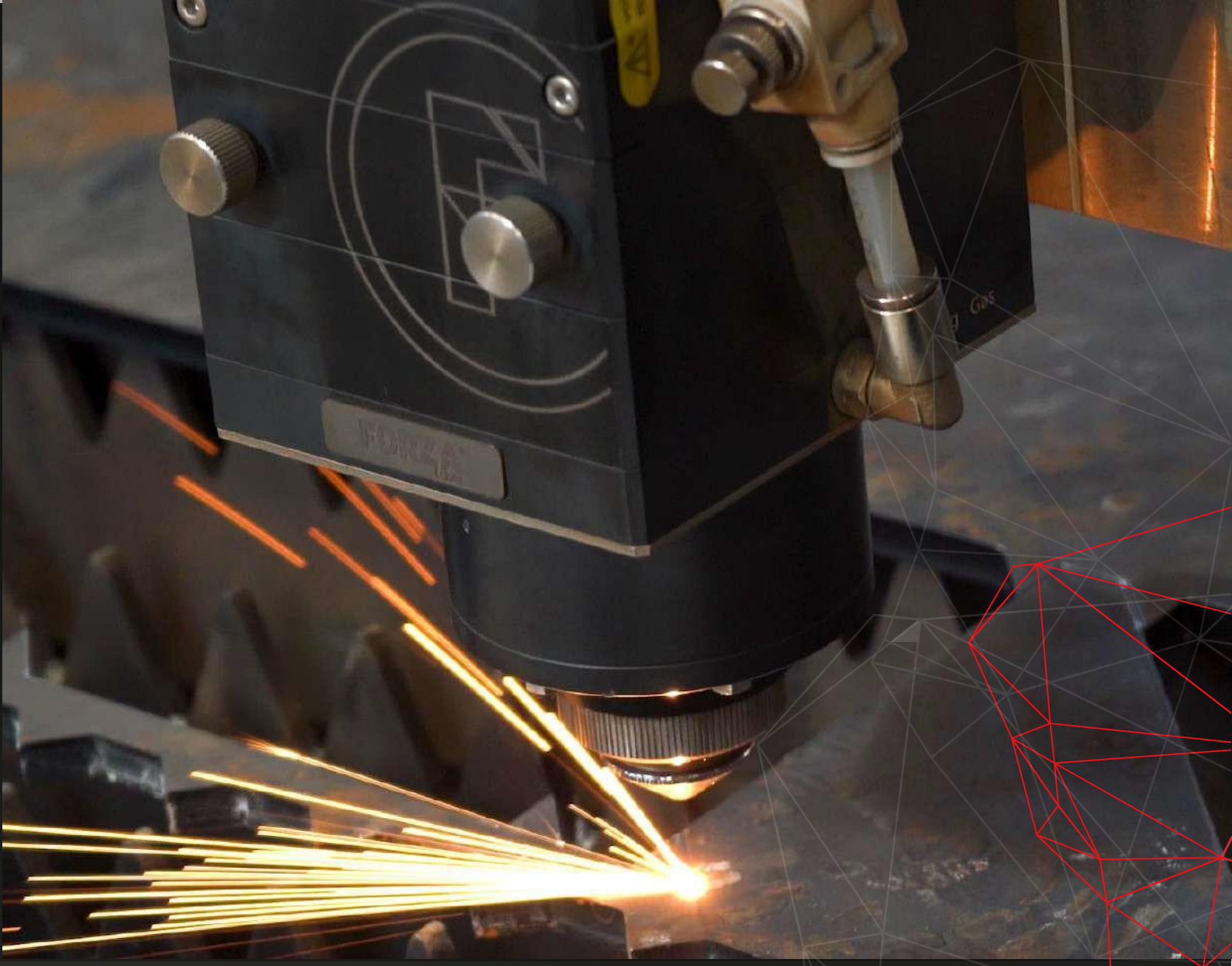




Manufactured Parts







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